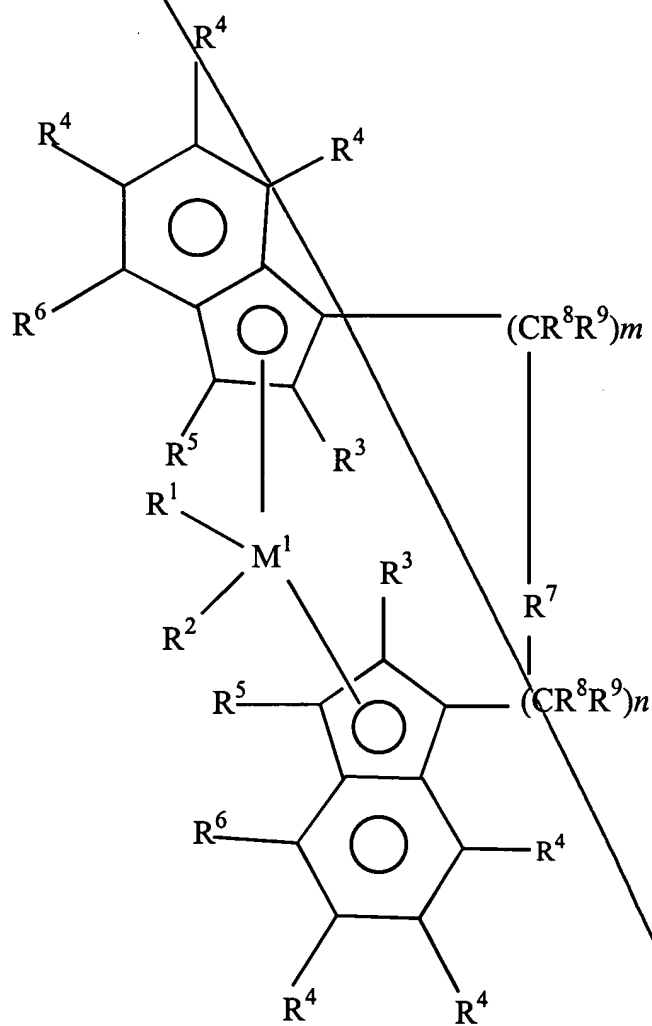


1. A compound of the formula I in its pure meso-form or as a meso:rac > 1:99 mixture,



(I)

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in which

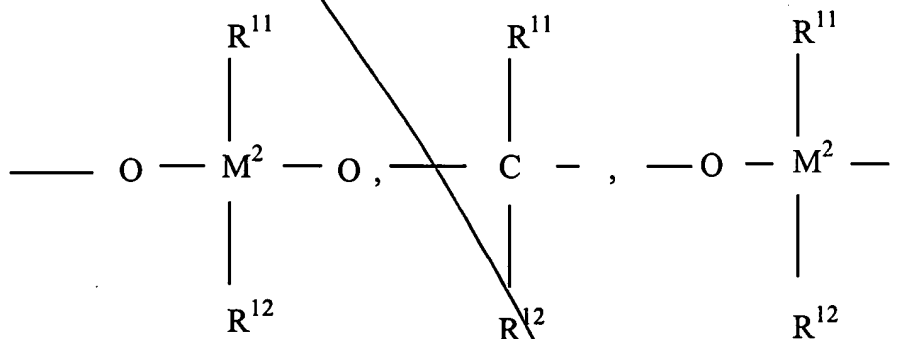
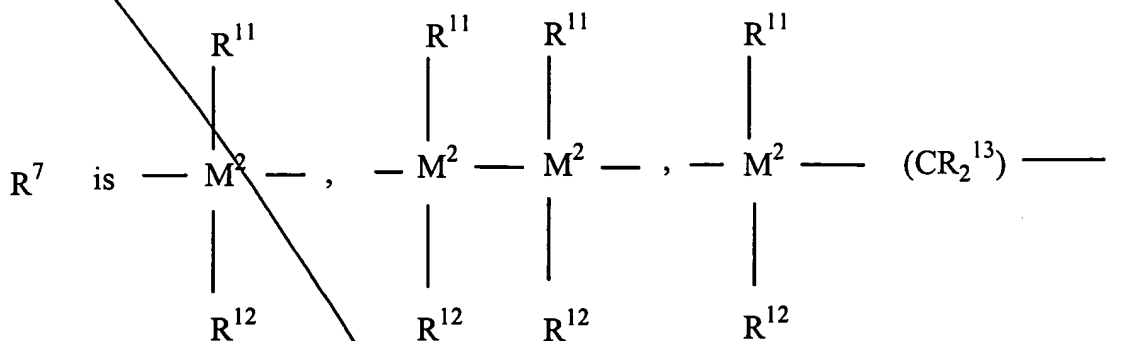
M¹ is a metal from group IVb, Vb or VIb of the Periodic Table,

R¹ and R² are identical or different and are a hydrogen atom, a C₁-C₁₀-alkyl group, a C₁-C₁₀-alkoxy group, a C₆-C₁₀-aryl group, a C₆-C₁₀-aryloxy group, a C₂-C₁₀-alkenyl group, a C₇-C₄₀-arylalkyl group, a C₇-C₄₀-alkylaryl group, a C₈-C₄₀-arylalkenyl group or a halogen atom,

the radicals R⁴ and R⁵ are identical or different and are a hydrogen atom, a halogen atom, a C₁-C₁₀-alkyl group, which may be halogenated, a C₆-C₁₀-aryl group, which may be halogenated, or an -NR₂¹⁰, -SR¹⁰, -OSiR₃¹⁰, -SiR₃¹⁰ or -PR₂¹⁰ radical in which R¹⁰ is a halogen atom, a C₁-C₁₀-alkyl group or a C₆-C₁₀-aryl group,

R³ and R⁶ are identical or different and are as defined for R⁴, with the proviso that R³ and R⁶ are not hydrogen, or two or more of the radicals R³ to R⁶, together with the atoms connecting them, form a ring system,

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$>BR^{11}$, $>AIR^{11}$, $-Ge-$, $-Sn-$, $-O-$, $-S-$, $>SO$, $>SO_2$, $>NR^{11}$, $>CO$, $>PR^{11}$ or $>P(O)R^{11}$,

where

R^{11} [R^{12} and R^{13} are identical or] and R^{12} are different and are a hydrogen atom, a halogen atom, a C_1 - C_{10} -alkyl group, a C_1 - C_{10} -fluoroalkyl group, a C_6 - C_{10} -aryl group, a C_6 - C_{10} -fluoroaryl group, a C_1 - C_{10} -alkoxy group, a C_2 - C_{10} -alkenyl group, a C_7 - C_{40} -arylalkyl group, a C_8 - C_{40} -arylalkenyl group or a C_7 - C_{40} -alkylaryl group,

R^{13} is a hydrogen atom, a halogen atom, a C_1 - C_{10} -alkyl group, a C_1 - C_{10} -fluoroalkyl

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group, a C₆-C₁₀-aryl group, a C₆-C₁₀-fluoroaryl group, a C₁-C₁₀-alkoxy group, a C₂-C₁₀-alkenyl group, a C₇-C₄₀-arylalkyl group, a C₈-C₄₀-arylalkenyl group or a C₇-C₄₀-alkylaryl group.

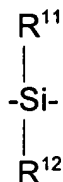
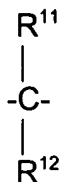
or R¹¹ and R¹², or R¹¹ and R¹³, in each case together with the atoms connecting them, form a ring,

M² is silicon, germanium or tin,

R⁸ and R⁹ are identical or different and are as defined for R¹¹, and

~~m and n are identical or different and are zero, 1 or 2, where m plus n is zero, 1 or 2.~~

2. A compound as claimed in claim 1, wherein, in the formula I, M¹ is Zr or Hf, R¹ and R² are identical or different and are methyl or chlorine, R³ and R⁶ are identical or different and are methyl, isopropyl, phenyl, ethyl or trifluoromethyl, R⁴ and R⁵ are hydrogen or as defined for R³ and R⁶, or R⁴ forms an aliphatic or aromatic ring with R⁶, or adjacent radicals R⁴ form an aliphatic or aromatic ring, and R⁷ is a



radical, and m plus n are zero or 1.

3. A compound [as claimed in claim 1, wherein the compound of the formula I is]

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selected from the group consisting of $[\text{Me}_2\text{Si}(2,4\text{-dimethyl-1-indenyl})_2\text{ZrCl}_2, \text{Me}_2\text{Si}(2\text{-methyl-4-isopropyl-1-indenyl})_2\text{ZrCl}_2, \text{Me}_2\text{Si}(2\text{-ethyl-4,methyl-1-indenyl})_2\text{ZrCl}_2, \text{Ph}(\text{Me})\text{Si}(2\text{-methyl-4-isopropyl-1-indenyl})_2\text{ZrCl}_2, \text{Me}_2\text{Si}(2\text{-methyl-4,5-benzoindenyl})_2\text{ZrCl}_2,]$ $\text{Me}_2\text{Si}(2,4,6\text{-trimethyl-1-indenyl})_2\text{ZrCl}_2, \text{Me}_2\text{Si}(2\text{-methyl-4,6-diisopropyl-1-indenyl})_2\text{ZrCl}_2, [\text{Me}_2\text{Si}(2\text{-methyl-}\alpha\text{-acenaphth-indenyl})_2\text{ZrCl}_2,]$ $\text{Me}_2\text{Si}(2\text{-methyl-4-phenyl-1-indenyl})_2\text{ZrCl}_2, \text{ethylene}(2,4,6\text{-trimethyl-1-indenyl})_2\text{ZrCl}_2, [\text{ethylene}(2\text{-methyl-4,5-benzoindenyl})_2\text{ZrCl}_2,]$ or $\text{methylethylene}(2\text{-methyl-}\alpha\text{-acenaphthindenyl})_2\text{ZrCl}_2$ [or $\text{Ph}(\text{Me})\text{Si}(2\text{-methyl-}\alpha\text{-acenaphthindenyl})_2\text{ZrCl}_2$].

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